CLAIMS

1. A method of tracking the size of a multicast audience comprising:

(a) transmitting to receivers receiving the multicast a plurality of requests each including a probability parameter (P), whereby each terminal replies or not with a corresponding probability;

(b) counting the number (r) of replies to each request;

(c) determining, from the counts and parameters, estimates of the number of receivers;

(d) filtering the estimates;

wherein the method further includes repeatedly computing a new probability parameter to be included in a subsequent step (a), by forecasting, from the counts and parameters, a upper bound for the number of receivers and determining therefrom the new probability parameter such that the risk that the number of replies exceeds a predefined threshold is kept below a predefined value.

2. A method according to claim 1 in which the step of computing a new probability parameter comprises:

estimating the maximum audience size corresponding to a predetermined probability of receiving a number of replies equal to that observed, given the probability parameter used;

performing said forecasting using said estimated maximum audience size and at least one previous value of said maximum audience size;

determining the new probability parameter ($P(t_{i+1})$) that, with the forecast maximum size, would involve the risk of the number of replies exceeding the capacity available to receive them falling below a predetermined risk threshold.

3. A method according to claim 2 including generating a filtered version of the estimated maximum sizes, prior to said forecasting.

4. A method according to claim 3 in which the filtering of the estimated maximum sizes is performed by a Wiener filter.

5. A method according to claim 3 or 4 including adaptively adjusting the parameters of said filtering of the estimated maximum sizes in dependence on the power spectrum of the estimates.

6. A method according to any one of claims 1 to 5 in which the forecasting is performed by extrapolating past values of the estimated maximum size.

7. A method according to any one of claims 1 to 6 in which said filtering of the estimates is performed by a Wiener filter.

8. A method according to any one of claims 1 to 6 including adaptively adjusting the parameters of said filtering of the estimates as a function of the power spectrum of past values of the estimates.

9. A method according to any one of the preceding claims in which said filtering of the estimates is performed after ceasing to determine said estimates.

10. A method according to any one of the preceding claims in which said filtering of the estimates is performed each time a new estimate is determined.

11. A method according to claim 10 when dependent on claims 5 and 8 in which the same filter parameters are used for the filtering of the estimates and the filtering of the maximum estimated sizes.

12. A method according to any one of the preceding claims including measuring the probability of loss of requests or replies and applying a correction to the first estimated size.

13. A method of estimating the size of a multicast audience comprising:

(a) transmitting to receivers receiving the multicast a plurality of requests each including a probability parameter (P), whereby each terminal replies or not with a corresponding probability;

(b) counting the number (r) of replies to each request;

(c) determining from the count a new probability parameter to be included in a subsequent step (a).

14. A method of estimating the size of a multicast audience comprising:

(a) transmitting to receivers receiving the multicast a plurality of requests each including a probability parameter (P), whereby each terminal replies or not with a corresponding probability;

(b) counting the number (r) of replies to each request;

(c) determining, from the counts and parameters, estimates of the number of receivers;

(d) filtering the estimates;

wherein the method further includes repeatedly computing a new probability parameter to be included in a subsequent step (a), by forecasting, from the counts and parameters, a upper bound for the number of receivers and determining therefrom the new probability parameter.

15. A method of estimating the size of a multicast audience comprising:
(a) transmitting to receivers receiving the multicast a plurality of requests each including a probability parameter (P), whereby each terminal replies or not with a corresponding probability;
(b) counting the number (r) of replies to each request;
(c) determining, from the counts and parameters, estimates of the number of receivers;
(d) filtering the estimates;
including adaptively adjusting the parameters of said filtering of the estimates as a function of the power spectrum of past values of the estimates.